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MEMORANDUM

DATE: 21 December 1998

TO: David Bennett, WAM, U.S. EPA, Region X

FROM: Michelle Turner, Chemist, WESTON, Seattle
RM Roger McGinnis, Senior Environmental Chemist, WESTON, Seattle

SUBJECT: Validation of Total Organic Carbon Analysis Results
Laboratory Batch K9805598
Site: Duwamish River

WORK ASSIGNMENT NO : 46-23-0JZZ

WORK ORDER NO.. 4000-019-038-5200-00

DOC. CONTROL NO.: 4000-019-038-AAAK

cc: Bruce Woods, RAP-WAM, U S EPA, Region X
Dena Hughes, Site Manager, WESTON, Seattle (memo only)
Kevin Mundell-Jackson, Database Management, WESTON

The quality assurance review of fourteen sediment samples, laboratory batch K9805598, collected from the Duwamish River has been completed. The sediment samples were analyzed for total organic carbon (TOC) using EPA Method 9060 by Columbia Analytical Services of Kelso, WA. The samples were numbered:

| | | | | |
|----------|----------|----------|----------|----------|
| 98344036 | 98344037 | 98344038 | 98344039 | 98344040 |
| 98344041 | 98344042 | 98344043 | 98344044 | 98344045 |
| 98344046 | 98344047 | 98344048 | 98344049 | |

Data Qualifications

The following comments refer to the laboratory performance in meeting the quality control specifications described in the technical specifications of the laboratory subcontract.

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QA Batch K9805598 (Total Organic Carbon)

Site Duwamish River

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1. Holding Times

All samples were cooled with ice or refrigerated from the time of collection until analysis. A maximum holding time of 14 days was specified in the Duwamish River Sampling and Analysis Plan. All TOC analyses were performed within 10 days of sample collection.

2. Instrument Detection Limits

All laboratory detection limits are equal to or less than the project-required detection limits of 200 mg/kg.

3. Initial Calibration

A calibration verification check was analyzed prior to sample analysis. Results met control limits of 90 to 110 percent recovery of the true value.

4. Continuing Calibration Verification

Continuing calibration checks were performed initially and after every 10 samples. Results for all continuing calibration checks met control limits of 90 to 110 percent recovery of the true value.

5. Laboratory Method Blanks

Laboratory method blanks were prepared and analyzed with each batch of samples. No analytes were detected in laboratory method blanks.

6. Laboratory Control Sample

The recoveries for TOC were within the control limits of 80 to 120 percent.

7. Laboratory Duplicate Sample Analysis

The percent relative percent difference (RPD) between replicate analytical results was within the QC limit of 35 percent.

8. Matrix Spike Analysis

Matrix spike recoveries for all analytes met QC criteria of 70 to 130 percent.

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QA Batch K9805598 (Total Organic Carbon)

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9 Field Duplicate Analysis

No field duplicates were associated with this SDG

10. Sample Analysis

A cursory review of raw data was performed. No problems were noted. Triplicate analyses were not performed for this SDG

11. Laboratory Contact

No laboratory contract was required.

Data Assessment

Upon consideration of the data qualifications noted above, the data are ACCEPTABLE for use except where flagged with data qualifiers that modify the usefulness of the individual values.

Data Qualifiers

- U - The material was analyzed for, but was not detected.
- UJ - The analyte was not detected. The associated quantitation limit is an estimate because quality control criteria were not met.
- J - The analyte was positively identified, but the associated numerical value is an estimated quantity because quality control criteria were not met or because concentrations reported were less than the quantitation limit or lowest calibration standard
- R - Quality control indicates that data are unusable (compound may or may not be present) Resampling and reanalysis are necessary for verification

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: Roy F Weston, Inc
Project: Duwamish River/4000-027-001-2019-38
Sample Matrix: Sediment

Service Request: K9805598
Date Collected: 8/18/98
Date Received: 8/19/98

Carbon, Total Organic

Prep Method NONE
Analysis Method 9060M
Test Notes

Units PERCENT
Basis Dry

| Sample Name | Lab Code | MRL | MDL | Dilution Factor | Date Extracted | Date Analyzed | Result | Result Notes |
|-------------------------|------------------------|-----------------|------------------|--------------------|-------------------|--------------------|---------------|-----------------|
| 98344043 | K9805598-001 | 0.05 | 0.006 | 1 | NA | 8/28/98 | 2.53 | |
| 98344044 | K9805598-002 | 0.05 | 0.006 | 1 | NA | 8/28/98 | 2.60 | |
| 98344045 | K9805598-003 | 0.05 | 0.006 | 1 | NA | 8/28/98 | 2.80 | |
| 98344046 | K9805598-004 | 0.05 | 0.006 | 1 | NA | 8/28/98 | 2.69 | |
| 98344047 | K9805598-005 | 0.05 | 0.006 | 1 | NA | 8/28/98 | 2.68 | |
| 98344048 | K9805598-006 | 0.05 | 0.006 | 1 | NA | 8/28/98 | 0.24 | |
| 98344049 | K9805598-007 | 0.05 | 0.006 | 1 | NA | 8/28/98 | 0.87 | |
| 98344036 | K9805598-008 | 0.05 | 0.006 | 1 | NA | 8/28/98 | 2.02 | |
| 98344037 | K9805598-009 | 0.05 | 0.006 | 1 | NA | 8/28/98 | 2.36 | |
| 98344038 | K9805598-010 | 0.05 | 0.006 | 1 | NA | 8/28/98 | 2.16 | |
| 98344039 | K9805598-011 | 0.05 | 0.006 | 1 | NA | 8/28/98 | 2.84 | |
| 98344040 | K9805598-012 | 0.05 | 0.006 | 1 | NA | 8/28/98 | 2.82 | |
| 98344041 | K9805598-013 | 0.05 | 0.006 | 1 | NA | 8/28/98 | 4.51 | |
| 98344042 | K9805598-014 | 0.05 | 0.006 | 1 | NA | 8/28/98 | 2.18 | |
| Method Blank | K9805598-MB | 0.05 | 0.006 | 1 | NA | 8/28/98 | ND | |

M Modified

10/11/30/98

Approved By

Date

10/6/98

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05598WET LJ1 Sample 10/6/98

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